

ABSTRACT

A laser annealing process for recovering crystallinity of a deposited semiconductor film such as of silicon which had undergone morphological damage, said process comprising activating the semiconductor by irradiating a pulsed laser beam operating at a wavelength of 400 nm or less and at a pulse width of 50 nsec or less onto the surface of the film, wherein,

said deposited film is coated with a transparent film such as a silicon oxide film at a thickness of from 3 to 300 nm, and the laser beam incident to said coating is applied at an energy density E (mJ/cm²) provided that it satisfies the relation:

$$\log_{10} N \leq -0.02 (E - 350),$$

where N is the number of shots of the pulsed laser beam.